Shota Rustaveli National Science Foundation of Georgia
2022 Grant Call for "Applied Research"
Terms of Reference

Article 1. General terms

1.   The Call for Applied Research State Grants (hereinafter referred to as the "Grant Call") is funded from the State Budget of Georgia and is administered by the Legal Entity of Public Law - Shota Rustaveli National Science Foundation of Georgia (hereinafter referred to as "the Foundation"), in compliance with Decree of the Government of Georgia № 85 dated as of February 16, 2011 and Decree of the SRNSFG Director General №146 dated as of August 2, 2022. Grants are issued within the framework of the open competition.

2.   Aim of the call is to select and fund original researches that aim at gaining new knowledge or applying existing knowledge to solve recognized, specific problems or practical tasks; To determine the applicability of a new or improved technology, methodology, product, service or solution through the technological/methodological development of a small-scale prototype, experimentation and validation in a laboratory or simulated environment, or through the demonstration of piloting and/or application in the real environment. The research should be focused on experimental development, increasing the Technology Transfer Readiness Level, commercialization or industrialization. The researches funded within this call should contribute to the strengthening of Georgia's Smart Specialization and the effective inclusion of science into the country's economy.

3.   The proposal submitted within the call should comply with the aim of the call, has to have the technological development and transfer potential, and has to consider the development of following skills: the creation and management of intellectual property, technology transfer and entrepreneurial skills.

4.   Within the frame of the call, proposal can be submitted in accordance with the scientific fields classification indicating the scientific fields, disciplines and sub- disciplines presented in the Article 8.

5. Three types of applied research will be funded within the framework of the call:

   a) Proof of concept (For more information see Article 2);
   b) Pilot research (For more information see Article 3);
   c) Implementation Research (For more information see Article 4).

Article 2. Proof of concept research program

1.   Proof of concept research shall be aimed at determining the applicability of a methodological or technological idea in a laboratory or simulated environment through experimentation (testing);

2.   The concept must have a positive written report (preliminary search report) on the patentability (novelty, inventive level, industrial applicability) of the invention issued by the National Intellectual Property Center of Georgia - "Sakpatent".

3.   Project duration can be 12 or 24 months.

4. The total amount of grant funding requested from the Foundation for the implementation of the proposal shall not exceed 90,000 GEL per year, and 180,000 GEL for 2 years.

5. Grant funding shall be disbursed in tranches, in advance. The amount of one tranche shall not exceed 90,000 GEL per year.

6. The project shall be co-financed, and the amount of co-financing shall be at least 5% of the total amount of grant funding.

7. The key personnel (team of researchers) together with the host organization are eligible to apply for the proof of concept research and receive the grant funding.

8. The key personnel (team of researchers) should include: Principal Investigator and at least one young scientist.

9. The project must have the host organization.

Article 3. Pilot research program

1. Pilot research shall be aimed at validating of the applicability of a methodological or technological idea in a real/industrial environment through examination/testing.

2. The piloting research idea should be based on the patent issued in Georgia and/or abroad, that will be valid for at least 2 years from the call announcement date.

3. Project duration can be 12 or 24 months.

4. The total amount of grant funding requested from the Foundation for the implementation of the project shall not exceed 120,000 GEL per year, and 240,000 GEL for 2 years.

5. Grant funding shall be disbursed in tranches, in advance, the amount of one tranche shall not exceed 120,000 GEL per year.

6. The project shall be co-financed, and the amount of co-financing shall be at least 15% of the total amount of grant funding.

7. The team of researchers together with the host organization or consortium are eligible to apply for the pilot research.

8. The key personnel (team of researchers) shall include: Principal Investigator and at least one young scientist.

9. In case of consortium, the project must also have co-principal investigator (from the partner organization) and a coordinator.

Article 4. Implementation research program

1. Implementation research shall be aimed at demonstrating of the applicability of a methodological or technological idea in a production/industrial environment, approbation of a production line service to ensure its access to the market.

2. The implementation research idea should be based on a patent issued in Georgia and/or abroad, that will be valid for at least 2 years from the call announcement date.

3. Project duration can be 12 or 24 months.

4. The total amount of grant funding requested from the Foundation for the implementation of the project shall not exceed 180,000 GEL per year, and 360,000 GEL for 2 years.

5. Grant funding shall be disbursed in tranches, in advance. The amount of one tranche shall not exceed 180,000 GEL per year.

6. The project shall be co-financed, and the amount of co-financing shall be at least 25% of the total amount of grant funding.

7. The key personnel - team of researchers together with the consortium is eligible to apply for the implementation research.

8. The key personnel (team of researchers) shall include: Principal Investigator, a co-principal investigator (from a partner organization) a coordinator and at least one young scientist.

Article 5. Terms of participation

1. **Key personnel**– a team of researchers performing the main research objectives to achieve project goals. Key personnel must meet the following requirements:

   a) Key personnel might be a person who holds a doctorate PhD, a master's, a bachelor's or an equivalent academic degree, or is a PhD or master's student.

   b) A person, as a key personnel, is ineligible for this call if she/he is involved in more than two projects registered and/or funded within the foundation calls.

2. **Principal Investigator** – A member of the key personnel who holds a PhD, or an equivalent academic degree and supervises the drafting of the proposal and research works and is responsible for both, the scientific outcomes of the project and the reporting on project related tasks and issues. A person, as a principal investigator, is ineligible for this call if she/he is involved in more than one project registered and/or funded within the foundation calls.

3. **Young scientist** –A person with MA/PhD or equivalent academic degree from key personnel whose academic degree has been awarded for not more than 7 years prior to the call announcement date (2 August 2022), as well as PhD or MA students.

4. **Coordinator** (in case of consortium) –Georgian citizen form the key personnel involved in the project management and administration and responsible for the consortium management and organizational affairs.

5. **Co-Principal Investigator** (in case of consortium) – A physical person from the key personnel who is a representative of the partner organization.

6. **Host organization** –A Legal Entity of the Public Law created in accordance with the legislation of Georgia, a Non-Entrepreneurial/Non-commercial Legal Entity of Private Law registered in Georgia (whose purpose, as stipulated by

their statutes/regulations, is to carry out scientific research), and a higher education institutions of Georgia. The host organization provides the project's key and supporting personnel with the material and technical infrastructure prescribed by the project; submits project performance reports in the form approved by the Foundation; is responsible for budget related financial issues; fulfills other obligations defined by the grant agreement.

7. **Consortium** (association of organizations) – an association of two or more legal entities, which includes host and partner organizations. A consortium may also include a co-participant organization.

8. **Partner organization** (in case of a consortium) – a legal entity carrying out entrepreneurial activities in accordance with the legislation of Georgia, which provides the project's key and supporting personnel with material and technical infrastructure necessary for research and/or supports with in-kind and/or in-cash co-funding, and fulfills other obligations defined the grant agreement. In-kind support may include: transfer/concession of financial assets, including purchase of expensive research infrastructure or provision the bank commitment guarantees of the purchased items and/or hiring of additional staff.

9. **Co-Participant organization** (in case of a consortium) – A Legal Entity of the Public Law created in accordance with the legislation of Georgia, a Non-Entrepreneurial/Non-commercial Legal Entity of Private Law registered in Georgia (whose purpose, as stipulated by their statutes/regulations, is to carry out scientific research), and a higher education institutions of Georgia. The co-participant organization provides the project's key and supporting personnel with the material and technical infrastructure prescribed by the project; submits project performance reports in the form approved by the Foundation; is responsible for budget related financial issues; fulfills other obligations defined by the grant agreement.

10. **Co-funding** – apart from the partner organization, the project may have co-funders - legal or physical person/persons co-funding the research together with the Foundation. The host organization can also act as a co-funder.

11. **Supporting personnel** (if necessary) – Person(s) performing the scientific-technical works, who are employed under the project to assist the key personnel. Supporting personnel shall not be allowed to perform the functions of the key personnel (for example, to register intellectual property independently from the key personnel, to publish research works, to disseminate/communicate research outcomes).

12. One organization may be involved in more than one project submitted to the call.

13. Prior to the project evaluation stage, the Foundation determines the compliance of the project with the first and second paragraphs of this article. In case of discrepancy, the project will not be submitted for the evaluation.

Article 6. Financial requirements

1. The project duration can be 12 or 24 months. Duration of a reporting period shall be 12 months.

2. The project budget may include the following categories:

   a) Grant funding for the key personnel;
   b) Salary for supporting personnel;
   c) Travel expenses;

d) Goods and services;
e) Major assets;
f) Overhead.

3. The total amount of grant funding for the key personnel and the salary for the supporting personnel shall not exceed 50% of the amount requested from the Foundation.

4. Overhead costs requested from the Foundation shall not exceed 5% of the funding requested from the Foundation; overheads are indirect costs made by the grant receiver (legal entity) to ensure the material and technical support of the project. Overheads can be used for the material-technical and administrative support of the project or for funding the scientific-research works.

5. The budget may include the costs related to the creation and management of intellectual property, as well as expenses related to the development of technology transfer and entrepreneurial skills.

6. Co-funding may take the form of in-cash and/or in-kind support and may include: purchase of expensive research infrastructure or provision the bank commitment guarantees of the purchased items and/or hiring of additional staff.

7. Any other grant received from the Foundation shall not be considered as co-funding.

8. The Foundation shall not reimburse the costs incurred in the preparation and submission of the project.

9. All costs made by the grantee shall be covered from the project's target account via bank transfer.

Article 7. Evaluation

1. The SRNSFG will conduct an eligibility check of submitted projects, will identify the discrepancy and will act in accordance with the law.

2. All eligible proposals will be evaluated in two stages:
   a) Assessment of technology transfer and commercialization potential;
   b) Scientific evaluation of the project.

3. At each stage of evaluation, proposals are evaluated against the criteria, which also includes sub-criteria. Compliance with each sub-criteria is evaluated on 5-point scale, where the evaluations is as follows:
   a) 1 point (Poor) – the proposal inadequately responses the given sub-criteria, the evaluation is difficult due to the insufficient, vague or irrelevant information;
   b) 2 points (Satisfactory) – the proposal generally responses the given sub-criteria, contains significant inaccuracies and weaknesses;
   c) 3 points (Good) –the proposal well responses the given sub-criteria, but contains some deficiencies and needs improvement;
   d) 4 points (Very good) – the proposal thoroughly responses the given sub-criteria. It`s originality and potential of research development are highlighted, however, it can be refined to some extent.
   e) 5 points (Excellent) – The project excellently responds the given sub-criteria.

4. The first stage of evaluation - the procedure for evaluating the technology transfer and commercialization potential:

a) All eligible proposals shall be evaluated by a group of international experts, based on oral reports/presentations of the call participants.

b) Evaluation criteria shall be as follows:

Criteria	Score
1. Project idea – Technology transfer and commercialization potential	Minimum 1, Maximum 5
2. The compliance of team's competencies with implementation of the idea	Minimum 1, Maximum 5
3. Research environment – Research implementation base, degree of cooperation between science and business	Minimum 1, Maximum 5
4. Feasibility - Project implementation time-frame and budget	Minimum 1, Maximum 5
Total Score	**Minimum 4, Maximum 20**
Final comments	

c) There are four criteria for evaluation. Each criteria is evaluated with a minimum of 1 and a maximum of 5 points, the total points vary between 4 and 20 points.

d) At least 12 points are needed to move to the second stage of evaluation.

5. The second stage of evaluation - the procedure of scientific evaluation of proposals:

a) The evaluation will be carried out by groups of international independent reviewers (panels). The group of reviewers will discuss and develop by consensus a final score and comment for each proposal.

b) Independent reviewers are confidential.

c) The Foundation shall ensure that the project is not sent for evaluation to a reviewer who was indicated as an undesirable reviewer by the project team.

d) Evaluation criteria shall be as follows:

Criteria	Score
1. Excellent Science	**Minimum 4, Maximum 20**
1.1. The importance and scope of the problem/challenge that the research proposes to address	Minimum 1, Maximum 5
1.2. Novelty, actuality and scientific and practical value of the research idea	Minimum 1, Maximum 5
1.3. Compliance of research methodology with research goals and objectives	Minimum 1, Maximum 5

1.4. Experience of the key personnel, scientific productivity, compatibility of competences with the goals and objectives set for the project	Minimum 1, Maximum 5
2. Impact	**Minimum 2, Maximum 10**
2.1. Expected outcomes of the research based on quantitative indicators - new knowledge/new usage of knowledge, new/improved technology, methodology, product, service process or solution; Strengthening the capabilities of the team	Minimum 1, Maximum 5
2.2. Potential for increasing the technology transfer readiness level - a strategy for the development of an applied idea	Minimum 1, Maximum 5
3. Feasibility	**Minimum 2, Maximum 10**
3.1. Compliance of the research implementation time-frame and budget with the goals set by the project	Minimum 1, Maximum 5
3.2. Compliance of the material and technical infrastructure with the research goals and objectives	Minimum 1, Maximum 5
Total Score	**Minimum 8, Maximum 40**
Final comments	

e) The evaluation shall be performed by three criteria, out of which the first criteria is evaluated with a minimum of 4 and a maximum of 20 points, and the second and third criteria are evaluated with a minimum of 2 and a maximum of 10 points, the total points vary between 8 and 40 points.

f) A necessary but insufficient condition for the project to get funding is to earn a total of 36 points or more at both stages of evaluation.

6. Based on the evaluations made by the groups of independent reviewers, ranking lists will be made and the winning projects will be identified.

7. After approving the winner projects by the General Director of the Foundation, the Foundation will ensure the announcement of the call results and their accessibility to the call participants.

Article 8. Science fields classification

The science fields classification is elaborated in compliance with European Research Council and covers following fields, disciplines and subdisciplines:

1. Natural sceinces

1.1 Mathematics
    1.1.1 Pure mathematics
    1.1.2 Applied mathematics

1.1.3 Statistics and probability - This includes research on statistical methodologies, but excludes research on applied statistics which should be classified under the relevant field of application (e.g. Economics, Sociology, etc.).

1.2 Computer and information sciences
1.2.1 Computer sciences
1.2.2 Information science and bioinformatics (hardware development to be 2.2, social aspect to be 5.8)

1.3 Physical sciences
1.3.1 Atomic, molecular and chemical physics (physics of atoms and molecules including collision, interaction with radiation; magnetic resonances; Moessbauer effect)
1.3.2 Condensed matter physics (including formerly solid state physics, superconductivity)
1.3.3 Particles and fields physics
1.3.4 Nuclear physics
1.3.5 Fluids and plasma physics (including surface physics)
1.3.6 Optics (including laser optics and quantum optics)
1.3.7 Acoustics
1.3.8 Astronomy (including astrophysics, space science)

1.4 Chemical sciences
1.4.1 Organic chemistry
1.4.2 Inorganic and nuclear chemistry
1.4.3 Physical chemistry, Polymer science, Electrochemistry (dry cells, batteries, fuel cells, corrosion metals, electrolysis)
1.4.4 Colloid chemistry
1.4.5 Analytical chemistry

1.5. Earth and related environmental sciences
1.5.1 Geosciences, multidisciplinary
1.5.2 Mineralogy
1.5.3 Palaeontology
1.5.4 Geochemistry and geophysics
1.5.5 Physical geography
1.5.6 Geology
1.5.7 Volcanology
1.5.8 Environmental sciences (social aspects to be 5.7)
1.5.9 Meteorology and atmospheric sciences;
1.5.10 Climatic research;
1.5.11 Oceanography, Hydrology, Water resources

1.6. **Biological sciences**
    1.6.1   Cell biology, Microbiology
    1.6.2   Virology
    1.6.3   Biochemistry and molecular biology
    1.6.4   Biochemical research methods
    1.6.5   Mycology
    1.6.6   Biophysics
    1.6.7   Genetics and heredity (medical genetics to be 3)
    1.6.8   Reproductive biology (medical aspects to be 3)
    1.6.9   Developmental biology
    1.6.10 Plant sciences, botany
    1.6.11 Zoology, Ornithology, Entomology, Behavioural sciences biology
    1.6.12 Marine biology, freshwater biology, limnology; Ecology; Biodiversity conservation
    1.6.13 Biology (theoretical, mathematical, thermal, cryobiology, biological rhythm), Evolutionary biology
    1.6.14 Other biological topics

2. Engineering and technology

2.1 Civil engineering
    2.1.1   Civil engineering
    2.1.2   Architecture engineering
    2.1.3   Construction engineering, Municipal and structural engineering
    2.1.4   Transport engineering

2.2 Electrical engineering, electronic engineering, information engineering
    2.2.1   Electrical and electronic engineering
    2.2.2   Robotics and automatic control
    2.2.3   Automation and control systems
    2.2.4   Communication engineering and systems
    2.2.5   Telecommunications
    2.2.6   Computer hardware and architecture

2.3 Mechanical engineering
    2.3.1   Mechanical engineering
    2.3.2   Applied mechanics
    2..3.3   Thermodynamics
    2.3.4   Aerospace engineering
    2.3.5   Nuclear related engineering; (nuclear physics to be 1.3)

2.3.6   Audio engineering, reliability analysis

2.4   Chemical engineering

2.4.1   Chemical engineering (plants, products)

2.4.2   Chemical process engineering

2.5   Material engineering

2.5.1   Materials engineering

2.5.2   Ceramics

2.5.3   Coating and films

2.5.4   Composites (including laminates, reinforced plastics, cermets, combined natural and synthetic fibre fabrics; filled composites)

2.5.5   Paper and wood

2.5.6   Textiles; including synthetic dyes, colours, fibres; (nanoscale materials to be 2.10; biomaterials to be 2.9)

2.6   Medical engineering

2.6.1   Medical engineering

2.6.2   Medical laboratory technology (including laboratory samples analysis; diagnostic technologies); (Biomaterials to be 2.9 [physical characteristics of living material as related to medical implants, devices, sensors])

2.7   Environmental engineering

2.7.1   Environmental and geological engineering, geotechnics

2.7.2   Petroleum engineering (fuel, oils), energy and fuels

2.7.3   Remote sensing

2.7.4   Mining and mineral processing

2.7.5   Marine engineering, sea vessels

2.7.6   Ocean engineering

2.8   Environmental biotechnology

2.8.1   Environmental biotechnology

2.8.2   Bioremediation, diagnostic biotechnologies (DNA chips and biosensing devices) in environmental management

2.8.3   Environmental biotechnology related ethics

2.9   Industrial biotechnology

2.9.1   Industrial biotechnology

2.9.2   Bioprocessing technologies (industrial processes relying on biological agents to drive the process), biocatalysis, fermentation

2.9.3 Bioproducts (products that are manufactured using biological material as feedstock), biomaterials, bioplastics, biofuels, bio-derived bulk and fine chemicals, bio-derived novel materials

2.10 Nano-technology
2.10.1 Nano-materials [production and properties]
2.10.2 Nano-processes [applications on nano-scale]; (biomaterials to be 2.9)

2.11 Other engineering and technologies
2.11.1 Food and beverages
2.11.2 Other engineering and technologies

3. Medical and health sciences

3.1 Basic medicine
3.1.1 Anatomy and morphology (plant science to be 1.6)
3.1.2 Human genetics
3.1.3 Immunology
3.1.4 Neurosciences (including psychophysiology)
3.1.5 Pharmacology and pharmacy
3.1.6 Medicinal chemistry
3.1.7 Toxicology
3.1.8 Physiology (including cytology)
3.1.9 Pathology

3.2 Clinical medicine
3.2.1 Andrology
3.2.2 Obstetrics and gynaecology
3.2.3 Pediatrics
3.2.4 Cardiac and Cardiovascular systems
3.2.5 Peripheral vascular disease
3.2.6 Hematology
3.2.7 Respiratory systems
3.2.8 Critical care medicine and Emergency medicine
3.2.9 Anaesthesiology
3.2.10 Orthopaedics
3.2.11 Surgery
3.2.12 Radiology, nuclear medicine and medical imaging
3.2.13 Transplantation

3.2.14 Dentistry, oral surgery and medicine

3.2.15 Dermatology and venereal diseases

3.2.16 Allergy

3.2.17 Rheumatology

3.2.18 Endocrinology and metabolism (including diabetes, hormones)

3.2.19 Gastroenterology and hepatology

3.2.20 Urology and nephrology

3.2.21 Oncology

3.2.22 Ophthalmology

3.2.23 Otorhinolaryngology

3.2.24 Psychiatry

3.2.25 Clinical neurology

3.2.26 Geriatrics and gerontology

3.2.27 General and internal medicine

3.2.28 Other clinical medicine subjects

3.2.29 Integrative and complementary medicine (alternative practice systems)

3.3 Health sciences

3.3.1 Health care sciences and services (including hospital administration, health care financing)

3.3.2 Health policy and services

3.3.3 Nursing; Nutrition, Dietetics

3.3.4 Public and environmental health

3.3.5 Tropical medicine

3.3.6 Parasitology

3.3.7 Infectious diseases

3.3.8 Epidemiology

3.3.9 Occupational health

3.3.10 Sport and fitness sciences

3.3.11 Social biomedical sciences (includes family planning, sexual health, psycho-oncology, political and social effects of biomedical research)

3.3.12 Medical ethics

3.3.13 Substance abuse

3.4 Health biotechnology

3.4.1 Health-related biotechnology

3.4.2 Technologies involving the manipulation of cells, tissues, organs or the whole organism (assisted reproduction)

3.4.3 Technologies involving identifying the functioning of DNA, proteins and enzymes and how they influence the onset of disease and maintenance of wellbeing, gene-based diagnostics and therapeutic interventions (pharmacogenomics, gene-based therapeutics)

3.4.4   Biomaterials (as related to medical implants, devices, sensors)

3.4.5   Medical biotechnology related ethics

3.5   Other medical sciences

3.5.1   Forensic science

3.5.2   Other medical sciences

4.   Agricultural sciences

4.1   Agriculture, forestry and fisheries

4.1.1   Agriculture

4.1.2   Forestry

4.1.3   Fishery

4.1.4   Soil science

4.1.5   Horticulture, viticulture

4.1.6   Agronomy, plant breeding and plant protection (Agricultural biotechnology to be 4.4)

4.2   Animal and dairy sciences

4.2.1   Animal and dairy science (Animal biotechnology to be 4.4)

4.2.2   Husbandry

4.2.3   Pets

4.3   Veterinary sciences

4.3.1   Veterinary sciences

4.4   Agricultural biotechnology

4.4.1   Agricultural biotechnology and food biotechnology

4.4.2   GM technology (crops and livestock)

4.4.3   Livestock cloning, marker assisted selection, diagnostics (DNA chips and bio sensing devices for the early/accurate detection of diseases) biomass feedstock production technologies, bio pharming

4.4.4   Agricultural biotechnology related ethics

4.5   Other agricultural sciences

5. Social sciences

5.1 Psychology
5.1.1 Psychology (including human - machine relations)
5.1.2 Psychology, special (including therapy for learning, speech, hearing, visual and other physical and mental disabilities)

5.2 Economics and business
5.2.1 Economics, Econometrics
5.2.2 Industrial relations
5.2.3 Business and Management

5.3 Education sciences
5.3.1 Education, general; Including training, pedagogy, didactics
5.3.2 Education, special (to gifted persons, those with learning disabilities)

5.4 Sociology
5.4.1 Sociology
5.4.2 Demography
5.4.3 Anthropology, ethnology
5.4.4 Social topics (Women's and gender studies; Social issues; Family studies, Social work)

5.5 Law
5.5.1 Law
5.5.2 Criminology
5.5.3 Penology

5.6 Political science
5.6.1 Political science
5.6.2 Public administration
5.6.3 Organization theory

5.7 Social and economic geography
5.7.1 Environmental sciences (social aspects)
5.7.2 Cultural and economic geography
5.7.3 Urban studies (Planning and development)
5.7.4 Transport planning and social aspects of transport (transport engineering to be 2.1)

5.8 Media and communication
5.8.1 Journalism

5.8.2   Information science (social aspects)

5.8.3   Library science

5.8.4   Media and socio-cultural communication

5.9   Other social sciences

5.9.1   Social sciences, interdisciplinary

5.9.2   Other social sciences

6.   Humanities

6.1   History and archaeology

6.1.1   History (history of science and technology to be 6.3, history of specific sciences to be under the respective headings)

6.1.2   Archaeology

6.2   Languages and literature

6.2.1   General language studies

6.2.2   Specific languages

6.2.3   General literature studies

6.2.4   Literary theory

6.2.5   Specific literatures

6.2.6   Linguistics

6.3   Philosophy, ethnics and religion

6.3.1   Philosophy, history and philosophy of science and technology

6.3.2   Ethics (except ethics related to specific subfields)

6.3.3   Theology

6.3.4   Religious studies

6.4   Art (arts, history of arts, performing arts, music)

6.4.1   Arts, art history

6.4.2   Architectural design

6.4.3   Performing arts studies (Musicology, Theater science, Dramaturgy)

6.4.4   Folklore studies

6.4.5   Studies on Film, Radio and Television

6.5   Other humanities